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Application No. 09/856,859  
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**IN THE CLAIMS**

1-14 (Cancelled)

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15. (Currently amended) A plurality of carriers on which a plurality of different compounds can be synthesized, including comprising a population of detectably distinct carriers wherein each carrier is suitable for providing a base for a sequence of reaction steps, each carrier having a code, which distinctively identifies a respective carrier before, during and after said synthesis from other carriers, and which is characterized by at least two detectable and/or quantifiable attributes integrally associated with the carrier, wherein individual carriers comprise all the attributes that define a corresponding code before commencing synthesis of a respective compound thereon, and wherein the population of detectably distinct carriers constitutes at least about 70% of the plurality of carriers, wherein one of said attributes is not shape, or surface deformation(s) of the carrier.

16. (Original) The plurality of carriers of claim 15, wherein at least one of said attributes of a respective carrier is comprised within or internally of the carrier.

17. (Original) The plurality of carrier of claim 15, wherein at least one of said attributes of a respective carrier is an electromagnetic radiation-related attribute.

18. (Original) The plurality of carriers of claim 17, wherein the electromagnetic radiation-related attribute is selected from the group consisting of fluorescence emission, luminescence, phosphorescence, infrared radiation, electromagnetic scattering including light and X-ray scattering, light transmittance, light absorbance and electrical impedance.

19. (Original) The plurality of carriers of claim 17, wherein the electromagnetic radiation-related attribute is a light emitting, light transmitting or light absorbing attribute detectable by illuminating the carrier with incident light of one or more selected wavelengths or of one or more selected vectors.

20. (Original) The plurality of carriers of claim 15, wherein a respective carrier has at least three detectable and/or quantifiable attributes integrally associated therewith.

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21. (Original) The plurality of carriers of claim 17, wherein the electromagnetic radiation-related attribute of a respective carrier comprises a fluorescent dye.
22. (Original) The plurality of carrier of claim 15, wherein each carrier is a colloidal particle.
23. (Original) The plurality of carriers of claim 15, wherein the carriers have different shapes selected from the group consisting of spheres, cubes, rectangular prisms, pyramids, cones, ovoids, sheets or cylinders.
24. (Original) The plurality of carriers of claim 15, wherein the carriers have different forms selected from the group consisting of pellet, disc, capillary, hollow fiber needle, pin and chip.
25. (Original) The plurality of carriers of claim 15, wherein the carriers have different sizes.
26. (Original) The plurality of carriers of claim 22, wherein the colloidal particle is a polymeric or ceramic particle.
27. (Original) The plurality of carriers of claim 26, wherein the ceramic particle is a silica particle.
28. (Original) The plurality of carriers of claim 26, wherein the carriers comprise ceramic particles with different diameters selected from about 0.01  $\mu\text{m}$  to about 150  $\mu\text{m}$ .
29. (Original) The plurality of carriers of claim 15, wherein a respective carrier comprises functionalities selected from the group consisting of  $-\text{NH}_2$ ,  $-\text{COOH}$ ,  $-\text{SOH}$ ,  $-\text{SSH}$  and sulfate.
- 30-62. (Cancelled)